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AUTHOR Ragozin, Arlene
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ABSTRACT

A total of 20 children, between 17 and 38 months old, were observed in their day care centers and in a standardized laboratory procedure. In both settings, preseparation, separation, and reunion situations were observed. Observers coded proximity-increasing and proximity-decreasing behaviors to mother and to other adults; in addition, distress, exploratory behaviors, and peer-directed behaviors were recorded. Behavior in day care centers shows clear evidence of attachment to mother: attachment behaviors were directed preferentially to mother, and rates of attachment behaviors increased from preseparation to reunion episodes. In the laboratory, age-related differences in behavior were consistent with those previously found in home-reared children. The results indicate a lack of intraindividual consistency between the two settings. (Author/SB)

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ATTACHMENT IN DAY CARE CHILDREN: FIELD AND LABORATORY FINDINGS[1]

Arlene Ragozin
Harvard University Graduate School of Education[2]

In the last few years, there has been a small but noticeable expansion of day care facilities for infants and toddlers -- although the prevailing opinion in the public at large and in substantial segments of the professional community is that separations from mother entailed in day care attendance are harmful to very young children (eg. Bowlby, 1969). Very recently, researchers have begun to assess this issue in terms of the impact of group day care on child-mother attachment (Blehar, 1974; Feldman, 1974; Kearsely et al., 1975; Kessel & Singer, 1973; Ricciuti, 1974). In these studies, behaviors of day care and home-reared children have been compared in experimental situations. There have been no systematic observations of attachment behaviors of day care children in their day care centers. Yet, in many ways, the center is an ideal setting for the study of attachment. In it, separations and reunions are uncontaminated by novelty effects found in typical laboratory procedures. And, given the familiarity of day care personnel, one may test the specificity

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1 Paper presented at the meeting of the Society for Research in Child Development, Denver, April, 1975.

2 The findings presented in this paper were obtained in the course of dissertation research on attachment behavior of young children in day care. Further inquiries should be sent to the author at her current address, 1951 14 Ave. East, Seattle, Wa. 98112.

to mother of various measures of attachment. Cohen (1974) notes that the assumed preferential nature of attachment behaviors rarely has been tested, and argues that it should be assessed by comparing responses to mother versus those to a familiar figure to whom the child is presumed not to be attached.

For the home-reared population, too, most attachment research has utilized a replication or variant of Ainsworth and Wittig's Strange Situation procedure (1969), a series of approximately 3 minute episodes in which subjects are observed in an unfamiliar room under mother-present, stranger-present, and alone conditions. Very few studies have examined the cross-setting generalizability of experimentally-induced attachment behaviors. Ainsworth, Bell, and Stayton (1971) did find a high degree of congruence between categories of behavior in the Strange Situation and in the home, within a sample of home-reared one-year-olds.

Since there is a paucity of data on the naturally occurring patterns of attachment behavior of young children attending day care and on the cross-setting generalizability of Strange Situation behaviors in the 1½ - 3-year age range, the present study sought to provide these data.

Method

Subjects

The sample consisted of 20 children between 17 and 38 months of age, who had been attending day care for at least 4 months. This group was composed entirely of middle-class children in Seattle, Washington who were enrolled in full-time group day care. They were children of highly educated mothers, all

but one of whom had attended college. Subjects were divided into groups of less than and over 30 months of age (younger group, mean = 24 months; older group, mean = 34 months). In this sample, age and sex were confounded. Since, however, the large majority of attachment studies have found few sex differences (Maccoby & Jacklin, 1974), the subsamples will be referred to simply by age.

Procedure

Subjects were observed in their day care centers during four episodes -- Arrival, Separation, mother's Absence, and Reunion -- on each of two different days. They also were observed in the laboratory under conditions that closely approximated the Strange Situation procedure. (See Tables 1 and 2 for details of observation procedures.)

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insert Tables 1 and 2 here

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In both field and laboratory settings, a large number of specific behaviors were coded on-the-spot on a modified-frequency, time-sampled basis. Every 6 seconds, two observers made coded entries of different aspects of a subject's behavior. Proximity-increasing and proximity-decreasing behaviors were coded with reference both to mother and to other adults (ie. the stranger in the laboratory; all adults other than mother in day care centers). Other items also were recorded to describe distress, exploratory behavior, and peer-directed behavior. Table 3 contains a brief description of the measures which occurred with sufficient frequency to warrant

statistical analysis in one or both settings.

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insert Table 3 here

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Response measures were scored as the per cent of intervals in which a behavior occurred, within an observation episode. Inter-observer reliability ranged from .96 to .75.

The major analysis of data was a two way analysis of variance of each measure to determine age and episode effects -- the latter a repeated measure. Separate analyses were conducted for the day care and laboratory settings. The specificity of attachment behaviors was tested with ANOVAS in which preference, age, and episode effects were determined for five measures in question. In addition, a test of association -- Kendall's tau -- was used to assess intra-individual consistency.

Results

Although the research design provided a great deal of descriptive data, this report will concentrate on the results of specific hypothesis testing. All the findings to be discussed are significant at the .05 level or better.

Naturalistic day care setting

On the basis of laboratory findings and the observations of early education specialists (Bowlby, 1969; Cox & Campbell, 1968; Maccoby & Feldman, 1972; Read, 1966), age effects were predicted in the day care setting. Specifically, younger children were expected to exhibit higher rates of attachment behavior and separation protest; they also were expected to

play less with objects and to interact less with peers. None of these predictions were confirmed. Measures of separation protest occurred too infrequently to be tested; the ANOVAS of other measures disclosed no significant age effects and only two significant age x episode interactions.

Thus, there was no evidence that children less than 30-months-old deal differently with group care experiences than do older ones. It should be noted that the absence of age effects was not the result of the homogenization of individual differences by a group care experience: very large standard deviations were found on most measures.

Second, it was hypothesized that heightening of attachment behavior following separation from mother -- widely noted in Strange Situation studies -- would be found following routine, all-day separations experienced in day care centers. This prediction was confirmed: comparison of Arrival and Reunion episodes showed increases in the rates of all six measures of attachment to mother. Four of these reached significance -- proximity, child-initiated proximity, touch, and communication. (See Figure 1).

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insert Figure 1 here

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A third hypothesis tested in the natural setting was that presumed measures of attachment would be displayed preferentially to the mother, as opposed to being directed equally to mother and to other familiar adults. Strong evidence of mother-preference was expected for proximity, follow/move with, and

touch -- three measures which closely reflect attachment theory. Two other measures -- communication and give/take of objects -- represent behaviors which children are expected to display to their teachers as well as to members of the immediate family. Mother-preference in communication and give/take was expected in a weaker form. Accordingly, two versions of the preference hypothesis were generated. 1) In the strong form, the minimum rates of proximity, follow/move with, and touch mother were expected to exceed the maximum rates of those behaviors to other adults. For example, if a subject's minimum rate of touching mother occurred in Arrival and his maximum rate of touching other adults occurred in Absence, those two scores were compared. 2) The weaker form of the hypothesis was that in those episodes in which mother and other adults were present (Arrival and Reunion), children would exhibit mother-preference on all variables.

In general, the predictions were confirmed. Considering first the stronger hypothesis, mother preference was significant for proximity and touch, but not for follow/move with. Also as expected, strong evidence of mother-preference was not found for give/take or communication (although, for the latter measure, the preference effect approached significance). The weaker version of the preference hypothesis was overwhelmingly confirmed: when mother and other adults were present, a child would direct behavior to his mother. Mother-preference was shown at the $p<.001$ level for four of five attachment measures (proximity, follow/move with, touch, and communication). The remaining measure, give/take, showed a trend toward mother-

preference ($p < .10$). There were no significant age main effects or age x preference interactions in either set of ANOVAS.

Strange Situation

The major prediction about the Strange Situation was that differences in behaviors of younger and older day care children would parallel those found in home-reared children. On the basis of previous research (Cox & Campbell, 1968; Maccoby & Feldman, 1972), it was expected that younger children would exhibit more attachment behavior and more separation distress, and also that they would engage in less play but more non-social locomotion. ANOVA results confirmed predictions: significant main effects of age were found for three of the four measures of separation distress (crying, passive proximity-maintenance to absent mother, and call for absent mother), for play and locomotion, and for two of the four measures of mother-attachment. Interestingly, significant age effects were found for proximity and touching mother -- the two "classical" attachment measures. (See Figure 2.)

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Intra-individual consistency of behavior

To determine the degree of intra-individual consistency across settings, behaviors elicited in the laboratory were compared with those found in analogous episodes in the day care setting. For example, the two mother-child reunion episodes in the Strange Situation were compared with the reunion episode in centers (using the pooled scores from the two days

of day care observations). The prediction of intra-individual consistency failed to be confirmed: Kendall's tau statistic showed that only 13% of the comparisons -- 4 of 32 -- reached the .05 level of significance in the predicted positive direction. Across episodes, the greatest consistency occurred in Reunion episodes; across measures, the greatest consistency was found in exploration measures -- play and locomotion.

One additional note to this brief discussion of intra-individual consistency: in order to gain some perspective on the cross-setting results, cross-time consistency was calculated for the two days of day care observations. (Average time between observations was 3 days.) Of the 25 cross-time comparisons, 24% were significant in the predicted positive direction. Again, the greatest stability among measures was found for exploration measures. Strong evidence of intra-individual stability also was found in the Separation episode, where three of the four comparisons reached significance (communication with other adults, play, and locomotion).

Discussion

The results of this research provide evidence that the patterns of attachment behavior of young children experiencing full-time group day care are comparable to those found in previous research with home-reared children. Day care children displayed clear-cut preference for mother versus other familiar adults; they showed heightening of attachment behaviors following lengthy, but routine, separations; and they exhibited expectable age-related differences in attachment behavior, separation protest, and exploration behavior in an unfamiliar situation. It is interesting to note that the Strange Situation

age effects were similar to those found by Maccoby and Feldman (1972) in home-reared 2- and 3-year-olds, but generally were opposite to age trends in day care children noted by Blehar (1974). Some of the discrepant results of the studies of day care children in the Strange Situation may be attributed to differences in observation methods (the present investigator used specific behavior codes, whereas Blehar primarily used a qualitative categorization system). The discrepancies also may be due to differences in the samples (in the present study, mothers were more highly educated) and to differences in the quality of substitute care (in the present study, the child to adult ratio in centers was about 4:1; in Blehar's investigation, the ratio was 8 or 9:1).

The results also suggest a cautious conservatism in interpreting the results of experimentally-induced attachment behaviors. For the population of young children in day care, at least attachment behaviors in the Strange Situation are not generalizable to those displayed in an on-going, familiar situation.

Perhaps we must consider more carefully the "strange" components of the Strange Situation -- novelty of persons and place, and departures from normal patterns of mother-child behavior (eg. it is unlikely that mothers normally leave their toddlers all alone in locked rooms, regardless of the familiarity of those rooms). Although the present data failed to support the notion that attachment behavior in the Strange Situation indexes attachment behavior found in routine situations, an intriguing possibility is that the Strange Situation does index patterns of attachment behavior found in naturally-occurring stressful situations.

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Table 1

STRANGE SITUATION (S.S.) PROCEDURE

Episode	Participants	Description
S.S. 1	Mother (M), Child (C)	C explores room and M completes background information form.
S.S. 2	M, C, Stranger (St)	St enters and sits quietly for 1 minute; converses with M for 1 minute; interacts with C for 1 minute.
S.S. 3	St, C	M leaves, either slipping out unobtrusively or saying, "I'll be back." St disengages herself from C and moves to spot on floor 3 feet away from C. St remains responsive to C's overtures.
S.S. 4	M, C	M calls, "I'm back" and pauses in doorway. M greets C; then goes to her seat for remainder of episode. St leaves unobtrusively at beginning of episode.
S.S. 5	C	M leaves saying, "I have to make a phone call. I'll be back." C is left alone for the remainder of the episode.
S.S. 6	St, C	St enters, sits on floor, and interacts with C. She distracts or comforts C as appropriate. St gradually disengages herself from C and moves 3 feet away.
S.S. 7	M, C	M opens door, says "Hello," and pauses. M then interacts freely with C. St leaves unobtrusively at beginning of episode.

Note. Although S.S. episodes contain the same events found in Ainsworth and Wittig's S.S. procedure, episodes are numbered differently in the present study. Ainsworth included in her numbered sequence an introductory period in which data were not recorded. This episode was omitted in the numbered list of episodes above.

Table 2

DAY CARE OBSERVATION PROCEDURE

Episode	Participants	Description
Arrival	M, C, other adults (A), peers (P)	C and M enter day care center classroom or yard. C is observed for 3 minutes, unless M departs sooner.
Separation	C, A, P	C observed for 3 minutes following M's departure.
Absence	C, A, P	C is observed for 3 minutes in a free play situation, beginning 1 hour after M's departure.
Reunion	M, C, A, P	Reunion begins when C is aware of M's return. C is observed for 3 minutes, unless C and M depart sooner.

Attachment in Day Care Children:
Field and Laboratory Findings

Arlene Ragozin

1951 14 Ave. East
Seattle, Wash. 98112

Table 3

RESPONSE MEASURES USED IN DAY CARE
AND/OR STRANGE SITUATION SETTINGS

Attachment Behaviors directed to mother

Proximity - child is within 3 feet of mother

Child-initiated proximity - child is responsible for stationing himself within 3 foot radius of mother

Child-initiated distance - child moves outside of a 3 foot radius of mother and remains there

Touch

Give/take of objects

Follow/move with

Communicate - all vocalizations, smiles, and gestures except those which serve to reduce child-mother proximity

Separation protest

Active seeking of absent mother - eg. banging on door

Passive proximity-maintenance to absent mother -eg. standing near door

Call for absent mother

Crying

Attachment behaviors to other adults (familiar adults in day care centers; stranger in Strange Situation)

Proximity

Child-initiated proximity

Child-initiated distance

Touch

Give/take of objects

Follow/move with

Communication

Exploratory behavior

Play - manipulation of objects

Locomotion - nonsocial movement

Peer-directed behavior

Proximity to peers - child is within 3 feet of peer

Interaction with peers - all neutral or positive interactions

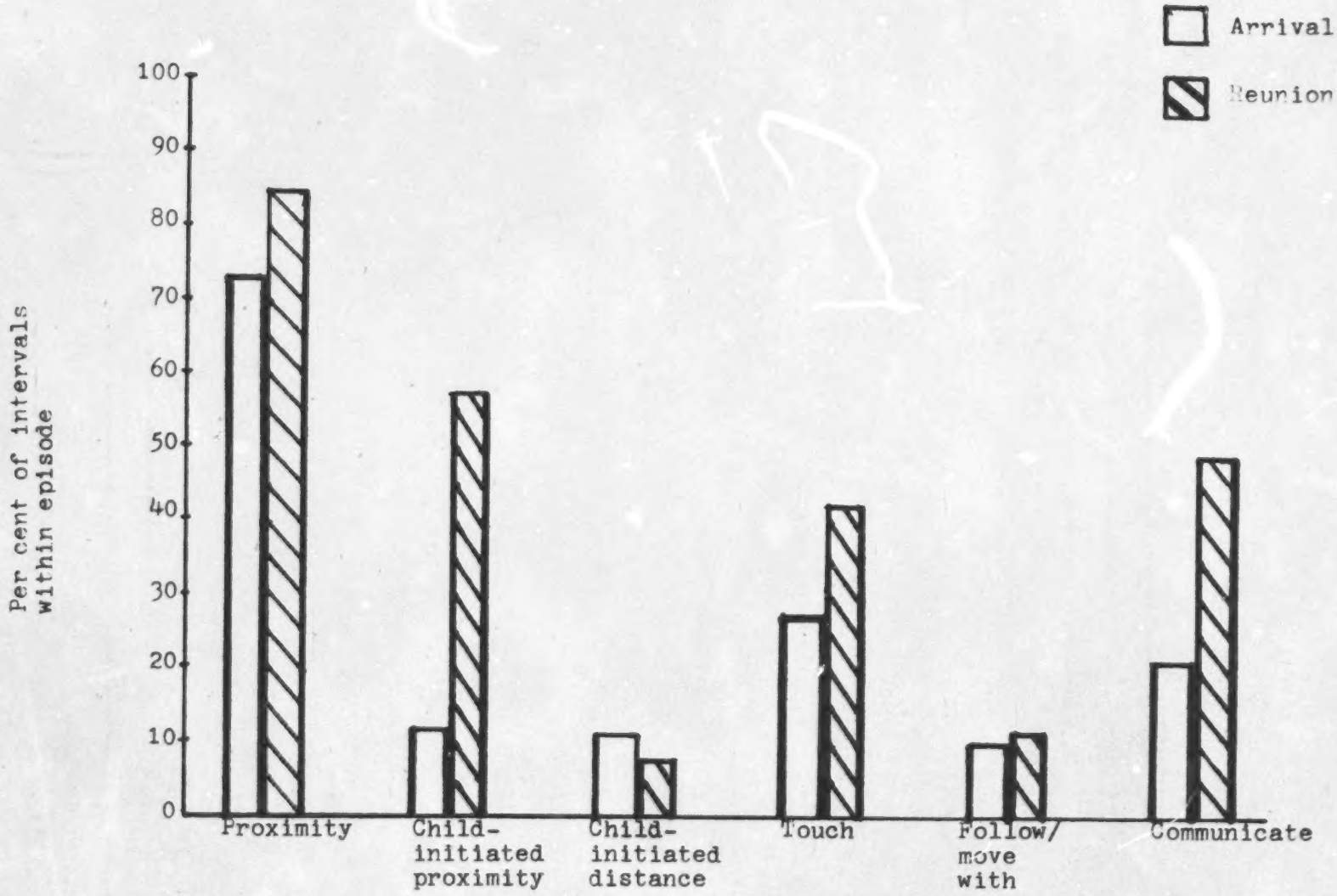

Figure 1. Mean rates of attachment behaviors to mother during Arrival and Reunion episodes in day care centers.

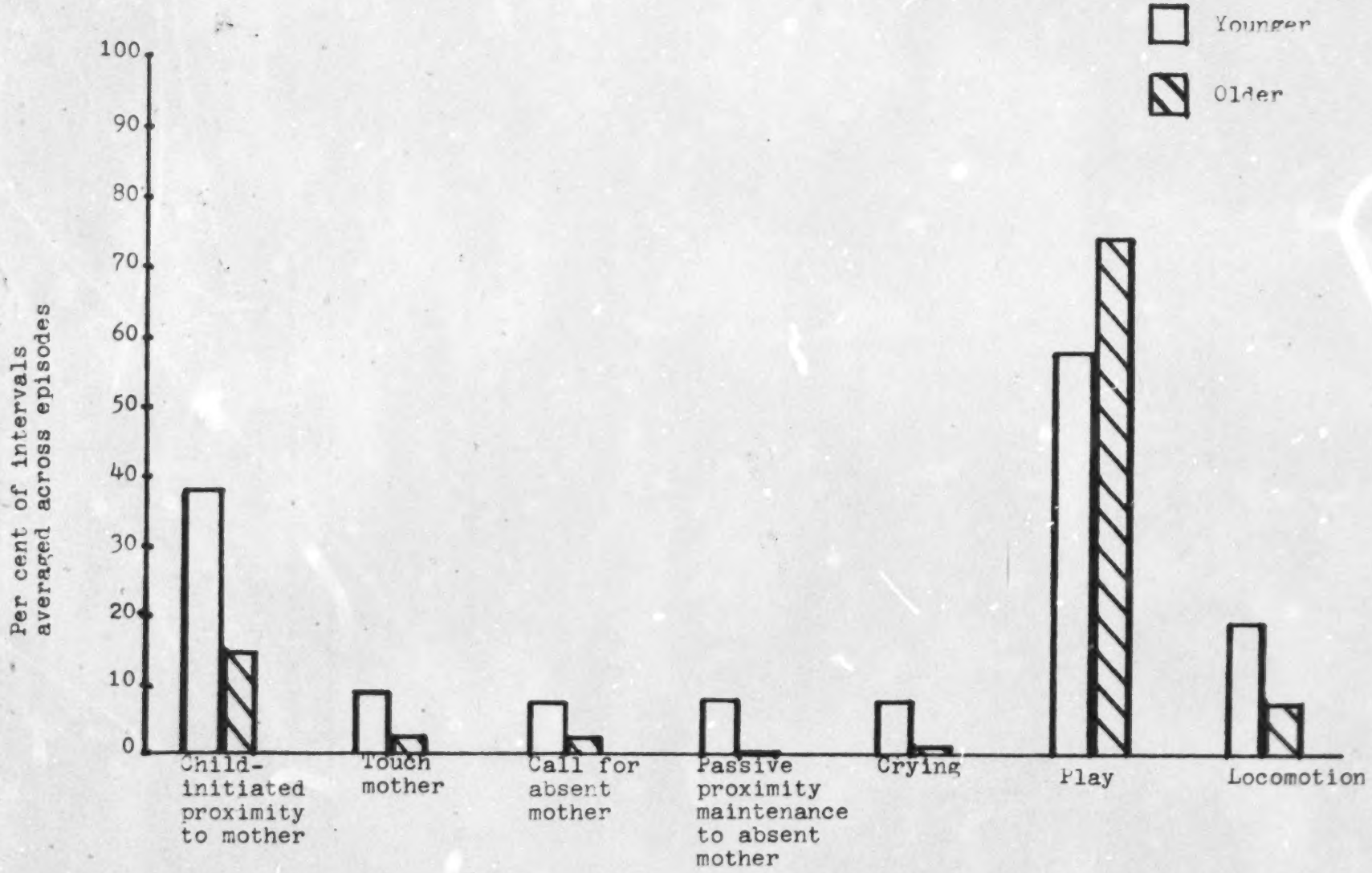

Figure 2. Measures of Strange Situation behavior which show significant differences between age groups.